How many devices can you connect in a single room? It sounds like the start of a riddle. But if you operate a hotel, apartment building, or other multi-dwelling unit (MDU) structure, your answer can have a big impact on your bottom line.

The RUCKUS H510 wall-mounted access point and switch makes it easy to support the most demanding in-room connectivity requirements. It starts with Ruckus’ patented Wi-Fi optimization intelligence to deliver the industry’s highest-performing wireless connectivity. Combine that with four-ports of Gigabit Ethernet to connect multiple in-room wired devices, without extra cabling. Put it all in a sleek, low-profile design that can be discretely installed over a standard electrical outlet.

The H510 is a perfect choice for delivering converged services in hospitality and residential locations such as hotel guest rooms, student residence halls, apartments, and other MDU structures. It can connect wired network devices such as IPTV set-top boxes, IP phones, or networked minibars, while simultaneously providing dual-band 802.11ac Wi-Fi coverage. A PoE port and pass-through features can connect and power devices directly from the wall switch. And, an included cable channel can connect even legacy devices, like digital phones that require native access to PBX systems. All of these in-room services can coexist within the same junction box, dramatically reducing cabling, installation time, and construction costs.

The H510 wall-mounted 802.11ac Wave 2 Wi-Fi AP incorporates patented technologies found only in the Ruckus Wi-Fi portfolio.

- Extended coverage with patented BeamFlex+ utilizing multi-directional antenna patterns.
- Improve throughput with ChannelFly, which dynamically finds less congested Wi-Fi channels to use.

With MultiUser-MIMO connectivity, the H510 can simultaneously transmit to multiple Wave 2 clients, improving network RF efficiency and overall performance, even for non-Wave 2 clients. The H510 also features a USB port to support future add-on radio modules, easy-to-deploy mesh networking capabilities, and support for up to 100 clients per room.

Whether you’re deploying ten or ten thousand APs, the H510 is also easy to manage through Ruckus’ appliance, virtual, and cloud management options.
RUCKUS H510
Wall-Mounted 802.11ac Wave 2 Wi-Fi Access Point and Switch

CONVERGED WIRED AND WIRELESS SERVICES
Ruckus' BeamFlex+ adaptive antennas allow the H510 AP to dynamically choose among a host of antenna patterns in real-time to establish the best possible connection with every device. This leads to:

- Better Wi-Fi coverage
- Reduced RF interference

Traditional omni-directional antennas, found in generic access points, oversaturate the environment by needlessly radiating RF signals in all directions. In contrast, the Ruckus BeamFlex+ adaptive antenna directs the radio signals per-device on a packet by-packet basis to optimize Wi-Fi coverage and capacity in real-time to support high device density environments. BeamFlex+ operates without the need for device feedback and hence can benefit even devices using legacy standards.

Note: The outer trace represents the composite RF footprint of all possible BeamFlex+ antenna patterns, while the inner trace represents one BeamFlex+ antenna pattern within the composite outer trace.
RUCKUS H510
Wall-Mounted 802.11ac Wave 2 Wi-Fi Access Point and Switch

**WI-FI**

**Wi-Fi Standards**
- IEEE 802.11a/b/g/n/ac Wave 2

**Supported Rates**
- **802.11ac**: 6.5 to 867 (MCS0 to MCS9, NSS = 1 to 2 for VHT20/40/80)
- **802.11n**: 4 to 300Mbps (MCS0 to MCS15)
- **802.11a/g**: 54, 48, 36, 24, 18, 12, 9, 6 Mbps
- **802.11b**: 11, 5.5, 2 and 1 Mbps

**MIMO**
- 2x2 SU-MIMO
- 2x2 MU-MIMO

**Spatial Streams**
- 2 Streams SU/MU-MIMO

**Radio Chains and Streams**
- 2x2:2

**Channelization**
- 20, 40, 80MHz

**Security**
- WPA-PSK, WPA-TKIP, WPA2 AES, 802.11i, Dynamic PSK
- WIPS/WIDS

**Other Wi-Fi Features**
- WMM, Power Save, Tx Beamforming, LDPC, STBC, 802.11r/k/v
- Creative Portal
- Hotspot
- Hotspot 2.0
- WiSPR

**RF**

**Antenna Type**
- BeamFlex+ adaptive antennas with polarization diversity
- Adaptive antenna that provides multiple unique antenna patterns

**Antenna Gain (max)**
- Up to 1dBi

**Peak Transmit Power (aggregate across MIMO chains)**
- 2.4GHz: 19dBm
- 5GHz: 22dBm

**Minimum Receive Sensitivity**
- -90dBm

**Frequency Bands**
- ISM (2.4-2.484GHz)
- U-NII-1 (5.15-5.25GHz)
- U-NII-2A (5.25-5.35GHz)
- U-NII-2C (5.47-5.725GHz)
- U-NII-3 (5.725-5.85GHz)

**2.4GHZ RECEIVE SENSITIVITY**

<table>
<thead>
<tr>
<th>Rate</th>
<th>Pout (dBm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>HT20:</td>
<td></td>
</tr>
<tr>
<td>MCS0</td>
<td>-98</td>
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<tr>
<td>MCS7</td>
<td>-79</td>
</tr>
<tr>
<td>HT40:</td>
<td></td>
</tr>
<tr>
<td>MCS0</td>
<td>-95</td>
</tr>
<tr>
<td>MCS7</td>
<td>-77</td>
</tr>
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</table>

**5GHZ RECEIVE SENSITIVITY**

<table>
<thead>
<tr>
<th>Rate</th>
<th>Pout (dBm)</th>
</tr>
</thead>
<tbody>
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<td>VHT20:</td>
<td></td>
</tr>
<tr>
<td>MCS0</td>
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<tr>
<td>MCS7</td>
<td>-74</td>
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<tr>
<td>VHT40:</td>
<td></td>
</tr>
<tr>
<td>MCS0</td>
<td>-89</td>
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<tr>
<td>MCS7</td>
<td>-66</td>
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<td>VHT80:</td>
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</tr>
<tr>
<td>MCS0</td>
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<tr>
<td>MCS7</td>
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**2.4GHZ TX POWER TARGET**

<table>
<thead>
<tr>
<th>Rate</th>
<th>Pout (dBm)</th>
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<tbody>
<tr>
<td>MCS0 HT20</td>
<td>19</td>
</tr>
<tr>
<td>MCS7 HT20</td>
<td>18</td>
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</tbody>
</table>

**5GHZ TX POWER TARGET**

<table>
<thead>
<tr>
<th>Rate</th>
<th>Pout (dBm)</th>
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</thead>
<tbody>
<tr>
<td>VHT20</td>
<td>22</td>
</tr>
<tr>
<td>MC50 VHT40</td>
<td>22</td>
</tr>
<tr>
<td>MC57 VHT40, VHT80</td>
<td>19</td>
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<tr>
<td>MC59 VHT40, VHT80</td>
<td>16</td>
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</tbody>
</table>

**PERFORMANCE AND CAPACITY**

**Peak PHY Rates**
- 2.4GHz: 300Mbps
- 5GHz: 867Mbps

**Client Capacity**
- Up to 100 clients per AP

**SSID**
- Up to 16 per AP

**RUCKUS RADIO MANAGEMENT**

**Antenna Optimization**
- BeamFlex+
- Polarization Diversity with Maximal Ratio Combining (PD-MRC)

**Wi-Fi Channel Management**
- ChannelFly
- Background Scan Based

**Client Density Management**
- Airtime Fairness
- Airtime-based WLAN
- Prioritization

**Queuing and Scheduling**
- SmartCast

**Mobility**
- SmartRoam

**Diagnostic Tools**
- Spectrum Analysis
- SpeedFlex

**NETWORKING**

**Controller Platform Support**
- SmartZone
- ZoneDirector
- Unleashed<sup>2</sup>
- Cloud Wi-Fi
- Standalone

**Mesh**
- SmartMesh<sup>™</sup> wireless meshing technology. Self-healing Mesh

**IP**
- IPv4, IPv6

**VLAN**
- 802.1Q (1 per BSSID or dynamic per use based on RADIUS)
- VLAN Pooling
- Port-based

**802.1x**
- Authenticator and Supplicant

**Tunnel**
- L2TP, GRE, Soft-GRE

**Policy Management Tools**
- Application Recognition and Control
- Access Control Lists
- Device Fingerprinting
- Rate Limiting

**IoT Capable**
- Yes

<sup>1</sup> Rx sensitivity varies by band, channel width and MCS rate.

<sup>2</sup> Refer to Unleashed datasheets for SKU ordering information.
PHYSICAL INTERFACES

Ethernet
- 1 x 1GbE port, RJ-45
- 4 x 1GbE ports, one PoE-out

USB
- 1 USB 2.0 port, Type A

SOFTWARE AND SERVICES

Location Based Services
- SPoT

Network Analytics
- SmartCell Insight (SCI)

Security and Policy
- Cloudpath

ORDERING INFORMATION

901-H510-XX00
- Dual band Wave 2 802.11ac Wi-Fi Wall Switch

See Ruckus price list for country-specific ordering information. Warranty: Sold with a limited lifetime warranty. For details see: http://support.ruckuswireless.com/warranty.

OPTIONAL ACCESSORIES

902-0162-XXYY
- PoE injector (24W) (Sold in quantities of 1, 10 or 100)

902-0170-XXYY
- Power Supply (48V, 0.63A, 30.24W) (Sold in quantities of 1 or 10)

902-0126-0000
- Optional Surface-mount bracket

PLEASE NOTE: When ordering Indoor APs, you must specify the destination region by indicating -US, -WW, or -Z2 instead of XX. When ordering PoE injectors or power supplies, you must specify the destination region by indicating -US, -EU, -AU, -BR, -CN, -IN, -JP, -KR, -SA, -UK, or -UN instead of -XX.

For access points, -Z2 applies to the following countries: Algeria, Egypt, Israel, Morocco, Tunisia, and Vietnam.

PHYSICAL CHARACTERISTICS

Physical Size
- 90 mm (W) x 171 mm (L), 29 mm (H)
- 3.54in (W) x 6.73in (L) x 1.14in (H)

Weight
- 210g (0.46lbs) without bracket
- 282g (0.62lbs) with bracket

Mounting
- Electrical wallbox; Standard US and EU single gang wall jack
- Optional bracket for offset & wall mount

Operating Temperature
- 0°C (32°F) - 40°C (104°F)

Operating Humidity
- Up to 95%, non-condensing

POWER

<table>
<thead>
<tr>
<th>Power Supply</th>
<th>Maximum Power Consumption</th>
</tr>
</thead>
<tbody>
<tr>
<td>802.3af/802.3at</td>
<td>12.9W</td>
</tr>
</tbody>
</table>

CERTIFICATIONS AND COMPLIANCE

Wi-Fi Alliance
- Wi-Fi CERTIFIED™ a, b, g, n, ac
- Passpoint®, Vantage

Standards Compliance
- EN 60950-1 Safety
- EN 60601-1-2 Medical
- EN 61000-4-2/3/5 Immunity
- EN 50121-1 Railway EMC
- EN 50121-4 Railway Immunity
- IEC 61373 Railway Shock & Vibration
- EN 62311 Human Safety/RF Exposure
- WEEE & RoHS
- ISTA 2A Transportation

3 Max power varies by country setting, band, and MCS rate.
4 For complete list of WFA certifications, please see Wi-Fi Alliance website.
5 For current certification status, please see price list.

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